

CLAIMS:

What is claimed:

1. A method in a network computer for diagnosing a problem, the method comprising the steps of:
- running diagnostic programs on a diagnostic adapter card coupled to the network computer;
- reporting the results from running the diagnostic programs; and
- analyzing the results from running the diagnostic programs to determine a cause of the problem.
2. The method of claim 1, wherein the diagnostic adapter card is coupled to the network computer by way of an open slot on a PCI (Peripheral Component Interconnect) bus in the network computer.
3. The method of claim 1, wherein running diagnostic programs includes running a program to test bus timing, to test bus mastering, to test direct memory access operations, to test data and control registers associated with devices connected to a system bus, to test system memory, to test timeout functions, to test a boot flash monitor, to test input/output integrity for one or more devices selected from a keyboard, a mouse, a graphics adapter, a serial port, a parallel port, a universal serial bus port, a microphone, a speaker, and an audio output port.
4. The method of claim 1, wherein reporting results includes sending data to a remote workstation, storing information in a log file, and displaying a result code

Docket No. AUS000213US1

on a display device connected to the diagnostic adapter card.

5. The method of claim 1, wherein analyzing results includes detecting the absence of a response from a component, detecting a discrepancy between an expected response and an actual response, and recognizing errors in signal timing.

6. The method of claim 1, wherein the cause of the problem includes detecting a nonfunctioning component, detecting an intermittently failing component, and detecting a faulty software program.

7. An apparatus in a network computer for diagnosing a problem, the apparatus comprising:
a processing means for executing diagnostic programs on the diagnostic adapter card;
a reporting means for reporting results from executing the diagnostic programs;
an analyzing means for analyzing the results from executing the diagnostic programs to determine a cause of the problem.

8. The apparatus of claim 7, wherein the apparatus comprises a diagnostic adapter card installed in an open slot on a PCI (Peripheral Component Interconnect) bus in the network computer and one or more wrap cables.

9. The diagnostic adapter card of claim 8, wherein the diagnostic adapter card includes a processing means to execute the diagnostic programs, a read only memory to

Docket No. AUS000213US1

boot the processing means, a random access memory to store diagnostic programs and data to be processed by the processing means, a first external connector to interface with a reporting device, and a second external connector
5 to connect a wrap cable to send or receive sample data.

10. The diagnostic adapter card of claim 8, wherein an integrity of a first input/output port in the network computer and a second input/output port in the network
10 computer is tested by connecting a wrap cable between the first input/output port and the second input/output port.

11. The diagnostic adapter card of claim 10, wherein the diagnostic adapter card processing means sends a first
15 set of data on a system bus to a device card for the first input/output port, the first set of data is sent via the wrap cable to the second input/output port, a device card for the second input/output port receives a signal as a second set of data, the device card for the
20 second input/output port sends the second set of data back to the diagnostic adapter card on the system bus, and the processing means on diagnostic adapter card compares the first set of data with the second set of data to determine any errors.

25 12. The diagnostic adapter card of claim 10, wherein the wrap cable between the first input/output port and the second input/output port converts a format of the data without changing content of the data.

30 13. The diagnostic adapter card of claim 10, wherein the processing means for executing diagnostic programs

Docket No. AUS000213US1

includes executing a program to test one of bus timing, bus mastering, direct memory access operations, data and control registers associated with devices connected to the system bus, system memory, timeout functions, system processor sequencing, a boot flash monitor, and input/output integrity for one or more devices selected from a keyboard, a mouse, a graphics adapter, a serial port, a parallel port, a universal serial bus port, a microphone, a speaker, and an audio output port.

10

A2
14. The diagnostic adapter card of claim 10, wherein the reporting means for reporting results includes one of sending data to a remote workstation, storing information in a log file, and displaying data on a display device connected to the diagnostic adapter card.

15

15. The diagnostic adapter card of claim 10, wherein the analyzing means for analyzing results includes one of recognizing known error codes, detecting the absence of a response from a component, and recognizing errors in signal timing.

20

16. The diagnostic adapter card of claim 10, wherein the cause of the problem includes one of detecting a nonfunctional component, detecting an intermittent component, and detecting a faulty software program.

25

17. An computer program product for diagnosing a problem, the computer program product comprising:
instructions for diagnostic programs on a diagnostic adapter card;

30

instructions for reporting results from executing

Docket No. AUS000213US1

the diagnostic programs;

instructions for analyzing the results from
executing the diagnostic programs to determine a cause of
the problem.

5

18. The computer program product of claim 17, wherein
instructions for executing diagnostic programs include
instructions for executing an integrity test of a first
input/output port and a second input/output port that are
10 connected by a wrap cable between the first input/output
port and the second input/output port.

19. The computer program product of claim 17, wherein
the instructions for executing diagnostic programs
15 includes executing a program to test one of bus timing,
bus mastering, direct memory access operations, data and
control registers associated with devices connected to
the system bus, system memory, timeout functions, system
processor sequencing, a boot flash monitor, and
20 input/output integrity for one or more devices selected
from a keyboard, a mouse, a graphics adapter, a serial
port, a parallel port, a universal serial bus port, a
microphone, a speaker, and an audio output port.

20. The computer program product of claim 17, wherein
the instructions for reporting results includes one of
sending data to a remote workstation, storing information
in a log file, and displaying information on a display
device connected to the diagnostic adapter card.

30

21. The computer program product of claim 17, wherein
the instructions for analyzing results includes detecting

Docket No. AUS000213US1

the absence of a response from a component, detecting a discrepancy between an expected response and an actual response, and recognizing errors in signal timing.

- 5 22. The computer program product of claim 17, wherein the cause of the problem includes one of detecting a nonfunctional component, detecting an intermittently failing component, and detecting a faulty software program.